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On the RATE *of* MORTALITY *prevailing amongst the* FAMILIES *of the* PEERAGE *during the* NINETEENTH CENTURY. *By* ARTHUR HUTCHESON BAILEY, *Actuary of the Equity and Law Assurance Society, and Fellow of the Institute of Actuaries; and* ARCHIBALD DAY, *Actuary of the London and Provincial Law Assurance Society, and Fellow of the Institute of Actuaries.*

[From the "Assurance Magazine and Journal of the Institute of Actuaries," vol. ix, part 6, July, 1861.]

IN a note in the introduction to Milne's "Treatise on Annuities," the author remarks—"There can, I think be no doubt but that the "mortality is greater among the higher than the middle classes of "society. They form too small a proportion of the population to "have any sensible effect here; but it would be of importance to the "Life Offices to determine the law of mortality among them." Since the publication of this work, forty-six years ago, some attempts have been made to test the accuracy of this assertion, and to supply the desideratum; but none with which we are acquainted are by any means conclusive.

In a tract, privately printed in the year 1832, entitled, "Observa-"tions on the Mortalities among the Members of the British Peerage," by the late Mr. George Farren, the author investigates the average duration of the enjoyment of the title by each peer, from observations made in 740 cases. Out of these, the ages are stated to have been recorded in 447 instances,—of which 288 succeeded to the title between the ages of 10 and 40; from which the conclusion was deduced (and this is the only result stated), that at the age of 25, the mean duration of life of the peers is very nearly 32 years, which corresponds with the mean duration by the Carlisle Table, at the age eight years older. The process adopted is not stated; but, independently of this and other objections, it will probably be considered that the number of facts observed was too small to warrant any general conclusions on the subject.

Mr. Edmonds contributed to the "Lancet" of the 10th February, 1838, and the 9th March, 1839, two papers—on the "Duration of "Life in the English Peerage," and on the "Lineage of English "Peers." His observations—extending, apparently, over a long interval of time—were made on 675 peers (32, whose deaths were violent or accidental, having been excluded), during the period of their possession of the title only. These 675 peers were the representatives of 109 titles, the first and last peer in the line of succession having been omitted. In 243 cases the ages were not stated, and this defect was supplied by an approximation made by observing the recorded dates of birth of other peers in the same line of descent. The results are given in three tables, from which it appears that the mortality among the peers is very much in excess of that of the Carlisle Table, but corresponds pretty nearly with a theoretical table constructed by Mr. Edmonds himself, which he designates " City Mortality," according to which the mortality at every age is 50 per cent. greater than in the Carlisle Table. The process by which these results are arrived at is nowhere stated, so that any verification of them is impossible. The number of facts seems to us altogether insufficient, and has been needlessly diminished by the exclusion of the first peer and the existing peer of every title, apparently for no other reason than that they were not required for another investigation which Mr. Edmonds had then in progress. The proportion of cases in which the ages were not recorded is very large—36 per cent. of the whole number; and the hypothetical method adopted for supplying this defect is, we think, open to considerable objection, especially as Mr. Edmonds seems to imply that had he carried out his original intention of deducing the mortality from those peers only whose ages were recorded, the results would have been different. Also, the probable effect of confining the observations to the period of the occupancy of the title only, will have been, if hereditary tendencies had their usual influence, to exaggerate the mortality of the younger ages, because the peers who succeeded to the title when young must as a general rule, have been the sons of short lived parents, and they would not enter into combination for several years with the sons of the long-lived parents, as the latter, for the most part, would not have succeeded to the title until older ages had been attained. Moreover, Mr. Edmonds's plan excludes altogether female and infant mortality, and takes but little account of that of the periods of childhood and youth. For these reasons, we cannot consider his investigations satisfactory or sufficient.

More recently, Dr. Guy made some observations on a much greater number of facts, the results of which he embodied in two papers read before the Statistical Society, and published in their *Journal* for March, 1845, and March, 1846. Dr. Guy's process is very clearly stated, and is sufficiently simple. He extracted from a Peerage and Baronetage in his possession the ages at death of 2,291 male lives who died above the age of 21 in a period of time extending from the thirteenth century to the year 1830, and having obtained the number of deaths at each age, a table of the mean duration of life was calculated from these materials. The result—somewhat unexpected, Dr. Guy says—being, that the mean duration of life among these classes is nowhere greater, and at all ages under 70 is materially less, than among the general male population of the country. Entertaining, as we do, a very sincere respect for Dr. Guy's scientific attainments, we cannot, at the same time, avoid remarking that his investigations upon the subject of mortality are unsatisfactory; all his observations having been made on the ages at death only, without any regard to the numbers living. This is not a fitting opportunity, nor can it be necessary here, to enlarge on this point. That observations made from deaths alone will always give erroneous results of the mortality, except in the case of a stationary population, is well known to all who have studied the subject: those who have not may consult Milne's article in the "Encyclopædia "Britannica" on "Mortality," and the 5th and 6th Annual Reports, with the Appendices, of the Registrar-General.

The results obtained by Dr. Guy have frequently been quoted both in newspapers and scientific publications—among others, by Mr. Neison, in his "Contributions to Vital Statistics"—and reasons attempted to be assigned for the conclusions arrived at. Now, as it is certain that, whether Dr. Guy's conclusions are correct or not, they cannot be deduced from the facts which he collected, and not being satisfied with the investigations of his predecessors in the same path, we resolved to undertake the not inconsiderable labour of determining the mortality prevailing among the families of the peerage by proper technical methods, tracing each case through every year of the period of observation, and comparing the number of deaths with the number of living in each year of age.

II.

Before commencing this task, however, the question arose—what reliance could be placed upon the accuracy of the peerage books? Having made some inquiries on this matter, we are informed, on good authority, that the process of their compilation is some such as the following:—The editors glean from the newspapers, from time to time, occurrences in the way of births, deaths, and marriages, and make the necessary alterations in the current editions of their works. A proof is then sent annually to each peer of the portion relating to his own family, with a request that he will be good enough to correct and return it. And although the proofs are not all returned annually, the editors express the utmost confidence that, except in a few instances, communications are always made to them whenever corrections are required, and that the several dates are accurately recorded. Having satisfied ourselves upon this important point, the next matter was to select which of the different Peerages should be made use of. The first at hand that of Burke, was quickly discarded. With a chivalrous spirit, worthy of the Ulster King-at-Arms, he invariably omits the dates of birth of the ladies; and his work, therefore, although probably well adapted for general circulation, was altogether unsuited for our purpose. We then turned to "Lodge's Peerage;" here the facts we required were fully and clearly given, even the still-born births being accurately recorded, and the only objection was, that it did not extend sufficiently far back in point of time. To remedy this, recourse was had to an older Peerage by Debrett; and from these two sources, with occasional reference to Burke, in cases of doubt or discrepancy, all the necessary information was obtained.

We had then to consider what should be the limits of our investigation. To have extended our researches back to distant generations would have been objectionable, because, as an impression commonly prevails that the rate of mortality has progressively improved, comparisons with other tables derived from modern data might have been considered inadmissible. Also, had we followed Mr. Farren and Mr. Edmonds, in restricting the observations to peers only, the number of facts would, in our judgment, have been insufficient, independently of other objections. On the other hand, had we included all the collateral branches, the distinctive features of the class would have been lost. We therefore determined, that the observations should be limited in point of time to the present century, and should be made upon peers, sons and daughters of peers, and sons and daughters of the eldest sons of peers.

The observations commence with the anniversary of the date of birth in the year 1800 of those who were born in the last century, and with the actual date of birth for the remainder, and terminate on the 31st December, 1855; the only assumption introduced being, that when, as it occasionally happened, the year only of birth or death was given, the day being omitted, this latter was taken to be the 30th June. Those cases were altogether excluded in which the year of birth was not recorded. The number of facts obtained was as follows, viz.:—

	Males.	Females.	Both Sexes.
Deaths	1,938	1,253	3,191
Existing, 31st December, 1855	2,283	1,999	4,282
Totals	4,221	3,252	7,473

When it is considered that the data from which the Carlisle Table of Mortality, which is probably the one in most general use, was derived, were two enumerations, made at an interval of about nine years, of 7,677 persons living on the first occasion, and 8,677 on the second; that the number of deaths was 1,840; and the ages obtained merely from information voluntarily given, we hope that in regard to time, numbers, and accuracy, the present materials may possess some value.

The extracts having been made separately for each sex, and afterwards combined, the results will be found in Tables I, II, and III, which are sufficiently explained by the headings of the columns. The only remarks needed being, that the number exposed to the risk was obtained by subtracting from the number who completed the age half of the number existing on the 31st December, 1855—that, as was unavoidable, the numbers at the oldest ages were somewhat arbitrarily dealt with—and that the mean duration of life was computed by means of the equation—

$$\text{Log. } e_x = \text{log. } p_x + \text{log. } (1 + e_{x+1}),$$

Where e_x represents the curtate mean duration at the age x. All the processes, both of making the extracts and the computations, were performed by each of us independently of the other.

As was to have been expected, the column representing the annual mortality exhibits numerous irregularities, but we have purposely abstained from applying any method of graduation. Indispensable as this process is for many applications of tables of mortality, and great as has been the ingenuity expended upon it, the process itself can only be regarded as a necessary evil; and, without going so far as to say, with Professor De Morgan, that "the "practice cannot be too strongly condemned," the force of his remark, that, "the tables thereby lose some of their value as representations of physical facts," is undeniable. And as the process was neither necessary nor desirable for one of the chief objects of this investigation—the comparison of the results with those of other tables—we have preferred to leave the observations unadjusted.

Examples of these results, compared with those of other tables of authority, will be found in Tables IV, V, and VI. The observations selected for comparison have been—of male lives exclusively, the English Life Table, representing the mortality of the population in general; the experience of the Equitable Society (chiefly males); that of the Government Annuitants, from Mr. Alexander Finlaison's recent Report; and the mortality of healthy districts, from a paper by Dr. Farr, lately read before the Royal Society. The latter, having been derived from the records of sixty-three districts of the country where the average annual mortality in 1,000 did not exceed 17, the general average being 22, is considered by Dr. Farr to be "the "nearest approximation we can obtain to a table representing the "human race in the normal state." For female lives exclusively, we have selected for comparison the corresponding tables of the English Life Table, the Government Annuitants, and the healthy districts; and for both sexes combined, the Carlisle Table, and the general table of the healthy districts.

III.

Referring first to *Male lives only*, it will be found that the average mean duration of life among the families of the peerage is, at all ages under 73, *greater* than among the general population of the country, greater even than among the selected lives of the Equitable Society, (with the unimportant exception of the period from 15 to 21, where the number of cases in that Society was very small); greater, at all ages under 62, than among the Government annuitants; and throughout, approaches pretty nearly to the standard table of the mortality of the healthy districts. At the older ages, it very nearly coincides both with the English Life Table and the Equitable experience, but is somewhat less than that of the Government annuitants. Looking to particular periods of life, it will be observed that the advantage in favour of the families of the peerage is most remarkable in infancy and childhood—the mortality under the age of 10 years being little more than one-third of that of the general population. In the next decade, the two tables nearly coincide; but at the succeeding period from 20 to 29, a very singular anomaly occurs. There the mortality among the families of the peerage is not only in excess of that of the English and Equitable Tables, but, contrary to our previous notions, is also materially greater than in the next decennial interval. A similar anomaly occurs in the Government annuitants, and also in the Society of Friends.* At all other ages, up to 80, the advantage is with the aristocratic class.

It is evident, therefore, that Dr. Guy's conclusions on this subject are erroneous; and to make this more clear, we have thought it worth while to compute a table of the mean duration of life, deduced from the deaths alone, in the present observations, and have placed some examples of it in juxtaposition with the corresponding results deduced by the correct method, and also by Dr. Guy.

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* In this Society, the annual mortality per cent. among the males has been found to be at the ages 20–29, ·881; and at the ages 30–39, ·782. Our information on the subject is derived from a most complete and interesting paper "On the "Vital Statistics of the Society of Friends," by Joseph John Fox, read before the Statistical Society, 21st December, 1858.

Males.—Peerage Families.

Age.	Mean Duration of Life.	Do. deduced from the Deaths only.	
		Present Observations.	Dr. Guy.
20	41·46	36·42	38·48
30	33·51	31·63	30·88
40	28·33	25·36	24·45
50	21·40	19·38	17·92
60	14·56	13·27	12·57
70	8·77	8·03	8·15
80	4·58	4·20	5·09

The above table is, we think, deserving of some attention—partly because the erroneous method of observation is very common with the medical profession; and partly, because the results of such observations are received with implicit confidence in some quarters where it could least have been expected.

IV.

Turning next to the tables for *Female life exclusively*, it will be observed that the average mean duration of life among the families of the peerage is, throughout *materially greater* than with the general population, coincides in a very remarkable manner, up to the age of 55, with that of the Government annuitants, and also of the inhabitants of the healthy districts, but surpasses them both for the remainder of life—indicating a more favourable mortality at the older ages than any table whatever with which we are acquainted. It will be seen that, as with the males, the contrast with the general population is most marked under the age of 10, but that in the next decade the mortality is somewhat in excess; the abnormal feature noticed in the males thus appearing among the females, but not to so great an extent, and occurring at a somewhat earlier period of life. The singularly favourable mortality above the age of 70 will not escape attention.

We believe that no previous attempt has been made to investigate the mortality prevailing among females of the higher classes in this country, and are not without hope that the present one may, owing to the trustworthiness of the data, help to elucidate the subject of female mortality generally. The known difficulty of obtaining accurate information on so delicate a subject as ladies' ages has, undoubtedly tended to throw some degree of suspicion upon all results obtained from any general records of the female population. Even the compilers of the Census of 1851, laudably eager as they are to break a lance in defence of the veracity of their countrywomen, were reluctantly compelled to admit that this part of the returns required some awkward and troublesome corrections, and cited the case of an eminent French statist, who after many persevering but fruitless attempts, had abandoned in despair a philosophical inquiry which had for its object to determine the ages of his wife and his cook.

Table VII will illustrate the comparative mortality of the sexes. As this is a subject of some interest, and as the evidence respecting it is conflicting, we have thought it deserving of some further examination.

The superior longevity of the Female sex having long been well known, one of the most striking results of the combined experience of the Assurance Offices was that the mortality amongst assured females was greater than amongst assured males. Several explanations of this apparent anomaly have been offered, none of them very satisfactory, and some altogether absurd; but, after a careful consideration of the matter, we cannot help thinking that the anomaly does not really exist at all. According to Dr. Farr's Tables, the mortality in the period of infancy is greater among boys than girls, from 2 to 40 years of age the mortality of females is in excess, while for the remainder of life the females have the advantage over the males in a marked degree. And we find that the remarkable tenacity of female life in old age so far outweighs the greater mortality of the sex shortly before and during the childbearing period, as to give to the female sex an average mean duration of life greater than that of the male throughout the whole of the table. These results the present observations confirm in every respect—they exhibit the superior vitality of *Females in infancy*, their remarkable tenacity of life in old age, and their greater mortality in youth and the prime of life; for notwithstanding the abnormal mortality of males between the ages of 20 and 30, it will be found that, taking the entire period from 5 to 45 years of age, the female mortality is in excess. Bearing these peculiarities in mind, it was certainly somewhat startling to find on referring to the Combined Experience Tables, that the female mortality in the decade 70–79 was both so great absolutely, and so much in excess of the male, especially as between the ages of 45 and 70 the female mortality is less. But on looking more closely, and remarking that the objection often urged, that these tables represent the experience not of lives but of policies, is serious when the numbers are small, though not, perhaps, very important when they are large, we discover that the whole number of claims above the age of 70, under policies on female lives, in all the combined Offices, was exactly 60, and only 477 at all ages. And the actuaries themselves assign the paucity of the numbers as a reason for the apparent excess of the female mortality at the older ages, admitting that no importance is to be attached to this result. But as the facts were avowedly insufficient to bring out the peculiar tenacity of life of the female sex in old age, the result is perfectly consistent with other observations. Instead, therefore, of asserting that the "mortality amongst assured females, taking all ages together, is greater than amongst assured males," we think a more accurate statement would have been, that the experience of the Offices confirms the result of other observations, which show the greater mortality of females during the childbearing period, and affording little or no information for the periods of infancy and old age, it did not possess the means of exhibiting the general mortality of the sex. In corroboration of this may be adduced the valuable information furnished by the experience, of the Eagle Office, where the number of female deaths exceeded those of all the combined Offices. In the experience of the Eagle, the female mortality was lower than the male taking all ages together; while, at the same time, under the age of 42, it was considerably in excess. And it must not be forgotten that the average period of observation of each life, although greater than with the combined Offices, did not exceed 8½ years; so that there is reason to believe that, if the observations were continued to the present time, the greater general vitality of the female sex would be still more apparent.

On the other hand, the late Mr. Finlaison, whose experience and authority on this subject were very great, stoutly contended that "the fact is undoubtedly certain, that the mortality of the "*female sex*, at every period of life, is less than that of the male sex " at the same ages, excepting only in infancy," and supported this assertion by numerous tables deduced from observations made on the nominees of certain tontines, and also on the Government annuitants from 1808 to 1825. These observations have been continued to the 31st December, 1850, by Mr Alexander Finlaison, and the results have been recently published in a report by that gentleman. The later results confirming, in this particular, the former observations, Mr. Alexander Finlaison appears to consider that his father's views are now unimpeachable, and form a standard by which the accuracy of other tables may be tested. Applying this test to the English Life Table, he makes the following remarks:—"At the youthful and earlier adult ages, the mortality of the female " is represented to be greater than that of the male. This conclusion " is contrary to most previous experience. It is a result which is " also contrary to nature. The sexes are not created in equal " numbers. For every twenty females there are produced twenty-one " males. But no fact is more thoroughly established, than that whenever the population is counted the females are present in considerably greater number. . . . Such a result could not take place

" unless the stronger sex were subjected to a higher rate of mortality, " died off much faster than the females."

From these observations we must express our dissent. Dr. Farr's conclusion is not contrary to most previous experience. Not only in the English Life Table, but also in the observations on the inhabitants of the healthy districts, on assured lives, and on the Society of Friends, the mortality of the female in the youthful and earlier adult ages is found to be greater than that of the male; and in *every* published table of mortality to which we have been able to refer, excepting only Mr. Finlaison's and the Swedish Tables, the mortality of the female is, at particular ages, in excess of that of the male. The peculiarity of Mr. Finlaison's results may, perhaps, be accounted for by the probability that a large proportion of the females in his observations are unmarried, and by the scantiness of his materials in middle life compared with their abundance at the older ages.

The English Life Table is not contrary to nature; for, concurrently with the greater mortality of the female at particular ages, we almost invariably observe a greater general mortality of the male. The two circumstances—the excess of male births and the greater general mortality of that sex—together cause that nearly uniform proportion of the sexes which successive enumerations disclose.

How far the long and elaborate attack on the English Life Table in Mr. Alexander Finlaison's report is consistent with the official etiquette usually observed by different departments of the State towards each other, we do not presume to determine. If the National Debt Office and the General Register Office are at variance, assuredly *non nostrum est tantas componere lites.* We only endeavour, amongst conflicting statements, to search for the truth; and the result of our inquiries on this particular subject—the comparative mortality of the sexes—has been to confirm the views of Dr. Farr, and not those of Mr. Finlaison. On the whole, if human life be divided into three great periods—of infancy, maturity, and old age—the weight of evidence is in favour of the general conclusions, that, at the two extremes, the mortality of the female sex is less, and at the intervening period greater than that of the male; the probable after-lifetime being at all ages, greater for the female.

The examples of the general table of Mortality of the families of the Peerage will suffice to dispel the previous views that have been propounded on the subject, and remove the erroneous ideas into which even so judicious and accomplished a writer as Milne has fallen, and which led Mr. Edmonds to make the unfounded assertion that " the severest mortality is to be looked for in the poorest class, " of a city population, and in the highest class of the moneyed or non- " labouring portion of the community." It will be observed that the mean duration of life among the families of the Peerage approaches nearly to that in Dr. Farr's standard table, and, with one slight exception, is throughout greater than in the Carlisle Table. This exception occurs about the age of 80, and may be readily explained by the circumstance, that in the population of Carlisle, from which the mortality table was framed, the females were about 55 per cent. of the whole number—a much greater proportion than occurs in the general population. In our observations, on the contrary, the males outnumber the females—a greater number of cases in the latter sex having to be rejected owing to deficiency of dates. Had it not been for this circumstance, the results of the general table would have proved even more favourable.

The peculiar features of the mortality at different periods of life have already been sufficiently discussed.

V.

One or two remarks on the application that may be made of the results of the present investigation, in the occupations in which most of us are engaged, may not be considered inappropriate. Adopting the common divison of the different ranks of society—into upper, middle, and lower classes—it may be safely stated that the latter, although forming the great bulk of the community, have hardly any dealings with Life Offices. And we are inclined to think that the somewhat heterogeneous mass called the middle class does not resort to these Offices to the same extent, in proportion to its number, as the higher classes. It is, we are aware, a popular belief, that the extent of the practice of life assurance in this country affords strong evidence of the provident habits of the community, and that the success of the Offices in Great Britain is attributable to the greater degree of prudence and forethought prevailing here than among the nations of the Continent. But some of those who have had the most experience in the matter would probably be of opinion that the practice of life assurance affords quite as much evidence of improvident as of provident habits; that the Offices obtain as many supporters from those who exceed as from those who live within their incomes; and that their success is attributable, in no slight degree, to the extent to which the practice of making settlements of property prevails in this country, and to the consequent number and variety of life interests of a pecuniary nature arising therefrom. However this may be, there can be no doubt that those who are beneficially interested in these settlements, but, at the same time, have not usually much ready money at command (a description not unfrequently applicable to the class now under observation), are introduced to the Assurance Offices in considerable numbers. It cannot, therefore, be otherwise than satisfactory to find that the mortality prevailing among the class in question is decidedly more favourable than any which the experience of the Offices has yet furnished.

The present investigation also indicates that the effect expected to be produced by selection of lives is much exaggerated; at the same time it confirms an opinion occasionally expressed, and which seems to be founded on experience, that the best lives are those that are assured for large amounts.

It may, perhaps, be of some service in a department of our practice which urgently requires amendment—the system upon which extra premiums for foreign residence are charged. The male lives that have formed the subject of the present investigation have been found to experience an unusually favourable mortality; yet they enter the army and navy in large numbers, travel extensively, and are certainly more exposed to what the Assurance Offices consider extra risks, than the middle classes. It would seem, therefore, to be no unfair inference, that differences of climate have less effect on human mortality than differences of occupation and position in life; and as the Offices do not attach much importance to the latter—taking a butcher and a country clergyman on similar terms—they might perhaps relax somewhat in their estimate of the former. Considering the very unsatisfactory character of the present practice in this respect, it might be worth consideration whether any serious risk would be incurred by dispensing altogether, in the majority of cases, with the existing restrictions on foreign travelling and residence.

On the other hand, the results of this investigation afford some suggestions for the exercise of caution. The most painful comparison presented by the present tables is the remarkable difference in the mortality of the *children* when contrasted with the general population. Now, as it may be tolerably safely assumed that all children for whom endowments are purchased will be well cared for, it would seem that both the Carlisle and English Tables are unsafe data for the calculation of Endowment premiums.

The exceptional mortality also of the period of *early manhood* confirmed as it is by the experience both of the Government annuitants and of the Society of Friends, indicates that those assurances are not the most desirable that are effected under the age of 30 for *terms of years*, on an increasing scale of premium, or on that most inconsistent and odious method called the "half credit system." The same circumstance will perhaps explain why, in the Economic Office, it has been found that the highest rate of mortality has been experienced on term assurances.

The information obtained upon the comparative mortality of the sexes leads to the conclusions, that tables of mortality for all purposes of life assurance should be derived from observations on *male* lives chiefly, or exclusively; that the greater vitality of the *female* will not justify any reduction of premium in contracts of assurance, because, on account of the large proportion of policies that are suffered to lapse, the greatest amount of risk will usually be incurred in middle life, at which particular period the female mortality is greater than the male. On the other hand, the distinction of sex is of serious moment in all contracts of annuities, immediate, deferred, and contingent; because in those cases the most important period is that of old age, where the distinction between the mortality of the sexes is most marked. The distinction is also important in another branch of our pursuits, where we believe, it is frequently overlooked —we mean in the valuation of reversionary interests.

Finally, if this investigation should tend to encourage the belief that the mortality of each well-defined class has peculiar characteristics of its own, it must weaken the hold that the Carlisle Table has upon some of its votaries, who seem to consider that for all purposes, and under all circumstances, their favourite table is applicable. A consideration of the characteristic features, both of these and of other observations on persons in affluent circumstances, may suggest to another class of enthusiasts, that there are many other causes affecting the mortality of mankind besides the sanitary condition of their habitations; and that although ventilation, drainage, and water supply are all very necessary things, they are not "all the law " and the prophets" notwithstanding. That the peculiar features of the present observations belong to the normal law of mortality of the human race, it would, we think, be very unwise either to affirm or deny. Notwithstanding all that has been written on that subject we remain of opinion that that law is yet undiscovered, and that a much greater number and variety of observations than we at present possess will be required for its discovery. Such a law, if discovered, would be of high interest, both to the physiologist and the mathematician. But it will represent the law that really prevails among the living, moving, thinking men that inhabit the earth, much in the same way that the statue of the Apollo Belvedere represents their bodily form. Such a law will never supersede, in our pursuits at least, the exercise of that careful judgment and sound discrimination which it should be our study to cultivate, and without which the most varied talents will be useless and the greatest attainments vain.

TABLE I.—*Males.*

Age (x).	Completed the Age x.	Existing 31 Dec., 1855, between the Ages x and $x + 1$.	Died between the Ages x and $x + 1$.	Number Exposed to the Risk from the Age x to $x + 1$.	Probability of Dying in the Year.	Probability of Surviving the Year.	Mean Duration of Life.
0	2534	31	197	2518·5	·07821	·92179	52·00
1	2358	38	38	2339·0	·01625	·98375	55·37
2	2326	27	20	2312·5	·00865	·99135	55·25
3	2328	42	9	2307·0	·00390	·99610	54·73
4	2315	42	10	2294·0	·00436	·99564	53·93
5	2302	27	11	2288·5	·00481	·99519	53·16
6	2293	45	4	2270·5	·00176	·99824	52·42
7	2276	34	6	2259·0	·00266	·99734	51·51
8	2271	49	10	2246·5	·00445	·99555	50·66
9	2250	30	8	2235·0	·00358	·99642	49·88
10	2249	42	9	2228·0	·00404	·99596	49·04
11	2238	36	13	2220·0	·00586	·99414	48·23
12	2230	26	8	2217·0	·00361	·99639	47·52
13	2231	28	11	2217·0	·00496	·99504	46·68
14	2227	36	5	2209·0	·00226	·99774	45·91
15	2225	34	9	2208·0	·00408	·99592	45·02
16	2223	33	16	2207·5	·00725	·99275	44·21
17	2211	30	14	2196·0	·00638	·99362	43·53
18	2197	27	16	2183·5	·00733	·99267	42·82
19	2188	36	17	2170·0	·00783	·99217	42·13
20	2174	48	18	2150·0	·00837	·99163	41·46
21	2135	42	35	2114·0	·01656	·98344	40·80
22	2089	32	20	2073·0	·00965	·99035	40·47
23	2077	31	24	2061·5	·01163	·98837	39·87
24	2053	36	18	2035·0	·00885	·99115	39·33
25	2035	31	23	2019·5	·01139	·98861	38·67
26	2010	38	25	1991·5	·01255	·98745	38·10
27	1985	24	15	1973·0	·00760	·99240	37·58
28	1978	40	17	1958·0	·00868	·99132	36·86
29	1949	27	18	1935·5	·00930	·99070	36·18
30	1938	36	24	1920·0	·01250	·98750	35·51
31	1899	35	11	1881·5	·00585	·99415	34·96
32	1882	30	19	1867·0	·01018	·98982	34·17
33	1867	34	14	1850·0	·00757	·99243	33·51
34	1851	31	12	1835·5	·00654	·99346	32·75
35	1835	26	10	1822·0	·00549	·99451	31·97
36	1815	33	25	1798·5	·01390	·98610	31·15
37	1773	49	11	1748·5	·00629	·99371	30·58
38	1738	31	17	1722·5	·00987	·99013	29·77
39	1720	28	15	1706·0	·00879	·99121	29·08
40	1697	30	23	1682·0	·01367	·98633	28·33
41	1657	36	16	1639·0	·00976	·99024	27·71
42	1626	26	22	1613·0	·01364	·98636	26·99
43	1604	37	17	1585·6	·01072	·98928	26·34
44	1565	38	10	1546·0	·00647	·99353	25·63
45	1537	39	22	1517·5	·01450	·98550	24·80

TABLE I.—*Males—Contd.*

Age (*x*).	Completed the Age *x*.	Existing 31 Dec., 1855, between the Ages *x* and *x* + 1.	Died between the Ages *x* and *x* + 1.	Number Exposed to the Risk from the Age *x* to *x* + 1.	Probability of Dying in the Year.	Probability of Surviving the Year.	Mean Duration of Life.
46........	1489	26	22	1476·0	·01491	·98509	24·16
47........	1464	37	19	1445·5	·01314	·98686	23·52
48	1419	30	19	1404·0	·01353	·98747	22·82
49........	1385	26	17	1372·0	·01239	·98761	22·13
50........	1355	29	21	1340·5	·01567	·98433	21·40
51........	1317	29	18	1302·5	·01382	·98618	20·74
52........	1280	31	15	1264·5	·01186	·98814	20·02
53........	1244	33	21	1227·5	·01711	·98289	19·25
54........	1201	21	27	1190·5	·02268	·97732	18·58
55........	1161	28	19	1147·0	·01656	·98344	18·00
56........	1128	35	24	1110·5	·02161	·97839	17·30
57........	1074	27	11	1060·5	·01037	·98963	16·66
58........	1042	33	27	1025·5	·02633	·97367	15·83
59........	989	18	20	980·0	·02041	·97959	15·25
60........	957	15	19	949·5	·02001	·97999	14·56
61........	930	19	26	920·5	·02818	·97182	13·85
62........	891	16	24	883·0	·02717	·97283	13·23
63........	859	18	32	850·0	·03764	·96236	12·59
64........	815	23	24	803·5	·02986	·97014	12·05
65........	775	20	33	765·0	·04313	·95687	11·41
66........	725	13	27	718·5	·03758	·96242	10·90
67........	687	18	27	678·0	·03983	·96017	10·30
68........	645	16	34	637·0	·05338	·94662	9·71
69........	602	16	35	594·0	·05892	·91108	9·23
70........	557	13	36	550·5	·06539	·93461	8·77
71........	513	15	32	505·5	·06330	·93670	8·35
72........	470	15	25	462·5	·05405	·94595	7·88
73........	432	6	32	429·0	·07457	·92543	7·31
74	396	10	35	391·0	·08952	·91048	6·85
75........	355	9	39	350·5	·11127	·88873	6·48
76........	314	8	29	310·0	·09354	·90646	6·23
77........	280	8	27	276·0	·09783	·90217	5·82
78........	235	8	27	231·0	·11688	·88312	5·40
79........	212	5	22	209·5	·10501	·89499	5·05
80........	187	4	20	185·0	·10811	·89189	4·58
81........	165	5	29	162·5	·17846	·82154	4·08
82........	131	6	16	128·0	·12500	·87500	3·85
83........	109	3	21	107·5	·19535	·80465	3·33
84........	85	—	19	85·0	·22353	·77647	3·02
85........	66	2	15	65·0	·23077	·76923	2·74
86........	49	3	13	47·5	·27369	·72631	2·41
87........	33	1	11	32·5	·33846	·66154	2·14
88........	21	3	8	19·5	·41026	·58974	1·97
89........	10	—	3	10·0	·30000	·70000	2·00
90........	7	—	3	7·0	·42847	·57143	1·64
91........	4	—	1	4·0	·25000	·75000	1·50
92........	3	—	2	3·0	·66666	·33334	·83
93........	1	1	—	·5	—	—	—

TABLE II.—*Females.*

Age (x).	Completed the Age x.	Existing 31 Dec., 1855, between the Ages x and $x + 1$.	Died between the Ages x and $x + 1$.	Number Exposed to the Risk from the Age x to $x + 1$.	Probability of Dying in the Year.	Probability of Surviving the Year.	Mean Duration of Life.
0........	2152	33	127	2135·5	·05948	·94052	53·71
1........	2029	30	33	2014·0	·01639	·98361	56·09
2........	2003	36	14	1985·0	·00705	·99295	56·00
3........	1987	35	11	1969·5	·00559	·99441	55·41
4........	1979	35	11	1961·5	·00561	·99439	54·71
5........	1963	36	5	1945·0	·00257	·99743	54·02
6........	1945	34	11	1928·0	·00571	·99429	53·15
7........	1926	33	11	1909·5	·00576	·99424	52·45
8........	1912	31	8	1896·5	·00422	·99578	51·75
9........	1901	35	7	1883·5	·00372	·99628	50·98
10........	1889	34	16	1872·0	·00854	·99146	50·16
11........	1861	34	18	1844·0	·00976	·99024	49·58
12........	1835	29	11	1820·5	·00604	·99396	49·06
13........	1834	40	4	1814·0	·00220	·99780	48·35
14........	1822	33	12	1805·5	·00665	·99335	47·46
15........	1813	35	8	1795·5	·00445	·99555	46·77
16........	1794	34	10	1777·0	·00563	·99437	45·97
17........	1776	30	20	1761·0	·01136	·98864	45·23
18........	1745	37	11	1726·5	·00637	·99363	44·74
19........	1722	38	18	1703·0	·01057	·98943	44·02
20........	1698	26	12	1685·0	·00712	·99288	43·48
21........	1679	34	12	1662·0	·00722	·99278	42·79
22........	1656	23	11	1644·5	·00669	·99331	42·10
23........	1643	32	16	1627·0	·00983	·99017	41·39
24........	1621	36	14	1603·0	·00873	·99127	40·80
25........	1596	29	14	1581·5	·00885	·99115	40·16
26........	1575	32	11	1559·0	·00706	·99294	39·50
27........	1560	29	13	1545·5	·00841	·99159	38·78
28........	1538	25	18	1525·5	·01180	·98820	38·10
29........	1518	27	11	1504·5	·00731	·99269	37·54
30........	1495	30	9	1480·0	·00608	·99392	36·82
31........	1479	27	12	1465·5	·00818	·99182	36·04
32........	1461	24	13	1449·0	·00897	·99103	35·33
33........	1434	32	18	1418·0	·01269	·98731	34·65
34........	1405	22	10	1394·0	·00717	·99283	34·09
35........	1383	22	20	1372·0	·01458	·98542	33·35
36........	1358	27	10	1344·5	·00744	·99256	32·83
37........	1335	20	12	1325·0	·00906	·99094	32·08
38........	1315	29	11	1300·5	·00846	·99154	31·37
39........	1287	31	12	1271·5	·00944	·99056	30·64
40........	1257	23	20	1245·5	·01606	·98394	29·93
41........	1225	32	13	1209·0	·01075	·98925	29·40
42........	1190	24	8	1178·0	·00679	·99321	28·71
43........	1164	28	16	1150·0	·01391	·98609	27·91
44........	1123	34	15	1106·0	·01356	·98644	27·30
45........	1079	28	13	1065·0	·01221	·98779	26·66

TABLE II.—*Females.—Contd.*

Age (x).	Completed the Age x.	Existing 31 Dec., 1855, between the Ages x and x + 1.	Died between the Ages x and x + 1.	Number Exposed to the Risk from the Age x to x + 1.	Probability of Dying in the Year.	Probability of Surviving the Year.	Mean Duration of Life.
46........	1049	35	14	1031·5	·01358	·98642	25·99
47........	1006	16	9	998·0	·00902	·99098	25·34
48........	986	33	8	969·5	·00825	·99175	24·56
49........	952	25	13	939·5	·01383	·98617	23·76
50........	924	29	16	909·5	·01759	·98241	23·08
51........	883	21	10	872·5	·01146	·98854	22·49
52........	857	19	5	847·5	·00590	·99410	21·74
53........	839	19	11	829·5	·01326	·98674	20·87
54........	816	31	16	800·5	·01998	·98002	20·14
55........	776	21	17	765·5	·02220	·97780	19·54
56........	740	20	20	730·0	·02740	·97260	18·98
57........	704	22	10	693·0	·01443	·98557	18·49
58........	673	20	15	663·0	·02262	·97738	17·76
59........	639	22	10	628·0	·01592	·98408	17·15
60........	607	16	15	599·0	·02504	·97496	16·42
61........	576	10	18	571·0	·03152	·96848	15·83
62........	549	14	18	542·0	·03321	·96679	15·34
63........	517	19	11	507·5	·02167	·97833	14·84
64........	490	8	20	486·0	·04115	·95885	14·16
65........	463	12	22	457·0	·04814	·95186	13·74
66........	430	13	13	423·5	·03069	·96931	13·41
67........	405	14	12	398·0	·03015	·96985	12·82
68........	380	15	18	372·5	·04832	·95168	12·20
69........	349	13	14	342·5	·04088	·95912	11·80
70	326	19	13	316·5	·04108	·95892	11·28
71........	296	13	17	289·5	·05872	·94128	10·74
72........	267	12	11	261·0	·04214	·95786	10·39
73........	246	6	13	243·0	·05350	·94650	9·82
74........	227	6	20	224·0	·08929	·91071	9·35
75........	202	8	10	198·0	·05051	·95949	9·22
76........	184	4	10	182·0	·05495	·94505	8·69
77........	170	7	16	166·5	·09610	·90390	8·16
78........	147	3	8	145·5	·05498	·94502	7·98
79	136	7	9	132·5	·06792	·93208	7·41
80........	120	8	13	116·0	·11207	·88793	6·92
81........	99	4	13	97·0	·13402	·86598	6·73
82........	82	7	10	78·5	·12739	·87261	6·69
83........	65	1	6	64·5	·09302	·90698	6·60
84........	58	3	3	56·5	·05310	·94690	6·22
85........	52	1	11	51·5	·21360	·78640	5·54
86........	40	2	3	39·0	·07692	·92308	5·91
87........	35	3	3	33·5	·08955	·91045	5·36
88........	29	—	4	29·0	·13793	·86207	4·84
89........	25	1	3	24·5	·12245	·87755	4·54
90........	21	1	4	20·5	·19512	·80488	4·10

TABLE II.—*Females—Contd.*

Age (x).	Completed the Age x.	Existing 31 Dec., 1855, between the Ages x and $x + 1$.	Died between the Ages x and $x + 1$.	Number Exposed to the Risk from the Age x to $x + 1$.	Probability of Dying in the Year.	Probability of Surviving the Year.	Mean Duration of Life.
91	16	1	2	15·5	·12903	·87097	3·97
92	13	2	2	12·0	·16667	·83333	3·49
93	9	—	1	9·0	·11111	·88889	3·08
94	8	1	2	7·5	·26667	·73333	2·41
95	5	—	1	5·0	·20000	·80000	2·10
96	4	2	—	3·0	·33333	·66667	1·50
97	2	—	—	2·0	·50000	·50000	1·00
98	2	—	—	2·0	—	—	—
99	2	—	—	2·0	—	—	—
100	2	—	—	2·0	—	—	—
101	2	1	—	1·5	—	—	—
102	1	—	—	1·0	—	—	—
103	1	—	—	1·0	—	—	—
104	1	1	—	·5	—	—	—

TABLE III.—*Both Sexes.*

Age (x).	Number Exposed to the Risk from the Age x to $x + 1$.	Died between the Ages x and $x + 1$.	Probability of Dying in the Year.	Probability of Surviving the Year.	Mean Duration of Life.
0	4654·0	324	·06962	·93038	52·62
1	4353·0	71	·01631	·98369	55·52
2	4297·5	34	·00791	·99209	55·44
3	4276·5	20	·00468	·99532	54·87
4	4255·5	21	·00494	·99506	54·13
5	4233·5	16	·00378	·99622	53·40
6	4198·5	15	·00357	·99643	52·60
7	4168·5	17	·00408	·99592	51·78
8	4143·0	18	·00434	·99566	50·99
9	4118·5	15	·00364	·99636	50·21
10	4100·0	25	·00610	·99390	49·39
11	4064·0	31	·00763	·99237	48·69
12	4037·5	19	·00471	·99529	48·07
13	4031·0	15	·00372	·99628	47·29
14	4014·5	17	·00423	·99577	46·47
15	4003·5	17	·00425	·99575	45·66
16	3984·5	26	·00653	·99347	44·85
17	3957·0	34	·00859	·99141	44·15
18	3910·0	27	·00691	·99309	43·52
19	3873·0	35	·00904	·99096	42·82
20	3835·0	30	·00782	·99218	42·21

TABLE III.—*Both Sexes—Contd.*

Age (x).	Number Exposed to the Risk from the Age x to $x + 1$.	Died between the Ages x and $x + 1$.	Probability of Dying in the Year.	Probability of Surviving the Year.	Mean Duration of Life.
21	3776·0	47	·01245	·98755	41·54
22	3717·5	31	·00834	·99166	41·05
23	3688·5	40	·01084	·98916	40·40
24	3638·0	32	·00880	·99120	39·83
25	3601·0	37	·01027	·98973	39·18
26	3550·5	36	·01014	·98986	38·58
27	3518·5	28	·00796	·99204	37·97
28	3483·5	35	·01005	·98995	37·27
29	3440·0	29	·00843	·99157	36·65
30	3400·0	33	·00970	·99030	35·96
31	3347·0	23	·00687	·99313	35·30
32	3316·0	32	·00965	·99035	34·54
33	3268·0	32	·00979	·99021	33·87
34	3229·5	22	·00681	·99319	33·20
35	3194·0	30	·00939	·99061	32·43
36	3143·0	35	·01114	·98886	31·73
37	3073·5	23	·00748	·99252	31·08
38	3023·0	28	·00926	·99074	30·31
39	2977·5	27	·00907	·99093	29·59
40	2927·5	43	·01469	·98531	28·86
41	2848·0	29	·01018	·98982	28·28
42	2791·0	30	·01075	·98925	27·57
43	2735·5	33	·01206	·98794	26·86
44	2652·0	25	·00943	·99057	26·18
45	2582·5	35	·01356	·98644	25·43
46	2507·5	36	·01436	·98564	24·77
47	2443·5	28	·01146	·98854	24·12
48	2373·5	27	·01138	·98862	23·40
49	2311·5	30	·01298	·98702	22·66
50	2250·0	37	·01644	·98356	21·95
51	2175·0	28	·01287	·98713	21·31
52	2112·0	20	·00947	·99053	20·58
53	2057·0	32	·01555	·98445	19·77
54	1991·0	43	·02160	·97840	19·08
55	1912·5	36	·01882	·98118	18·49
56	1840·5	44	·02391	·97609	17·83
57	1753·5	21	·01198	·98802	17·26
58	1688·5	42	·02487	·97513	16·46
59	1608·0	30	·01866	·88134	15·87
60	1548·5	34	·02196	·99804	15·16
61	1491·5	44	·02950	·97050	14·49
62	1425·0	42	·02947	·97053	13·91
63	1357·5	43	·03167	·96833	13·32
64	1289·5	44	·03412	·96588	12·74
65	1222·0	55	·04501	·95499	12·17

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TABLE III.—*Both Sexes—Contd.*

Age (x).	Number Exposed to the Risk from the Age x to $x+1$.	Died between the Ages x and $x+1$.	Probability of Dying in the Year.	Probability of Surviving the Year.	Mean Duration of Life.
66	1142·0	40	·03503	·96497	11·72
67	1076·0	39	·03624	·96376	11·13
68	1009·5	52	·05151	·94849	10·53
69	936·5	49	·05232	·94768	10·08
70	867·0	49	·05652	·94348	9·61
71	795·0	49	·06163	·93837	9·15
72	723·5	36	·04976	·95024	8·72
73	672·0	45	·06696	·93304	8·15
74	615·0	55	·08943	·91057	7·70
75	548·5	49	·08934	·91066	7·41
76	492·0	39	·07927	·92073	7·08
77	442·5	43	·09718	·90282	6·65
78	376·5	35	·09296	·90704	6·31
79	342·0	31	·09064	·90936	5·91
80	301·0	33	·10963	·89037	5·45
81	259·5	42	·16185	·83815	5·06
82	206·5	26	·12591	·87409	4·93
83	172·0	27	·15698	·84302	4·57
84	141·5	22	·15547	·84453	4·33
85	116·5	26	·22317	·77683	4·04
86	86·5	16	·18497	·81503	4·05
87	66·0	14	·21212	·78788	3·86
88	48·5	12	·24742	·75258	3·77
89	34·5	6	·17391	·82609	3·84
90	27·5	7	·25455	·74545	3·54
91	19·5	3	·15385	·84615	3·58
92	15·0	4	·26667	·73333	3·14
93	9·5	1	·10526	·89474	3·10
94	7·5	2	·26667	·73333	2·41
95	5·0	1	·20000	·80000	2·10
96	3·0	—	—	—	—
97	2·0	—	—	—	—
98	2·0	—	—	—	—
99	2·0	—	—	—	—
100	2·0	—	—	—	—
101	1·5	—	—	—	—
102	1·0	—	—	—	—
103	1·0	—	—	—	—
104	·5	—	—	—	—

TABLE IV.—*Males.*

Age.	MEAN DURATION OF LIFE.				
	Peerage Families.	English Table. Dr. Farr.	Equitable. Morgan.	Government Annuitants. A. G. Finlaison.	Healthy Districts. Dr. Farr.
0	52·00	40·36	—	—	48·56
10	49·04	47·47	48·32	45·57	51·28
20	41·46	39·99	41·67	38·74	43·40
30	35·51	33·21	34·53	33·39	36·45
40	28·33	26·46	27·40	27·12	29·29
50	21·40	19·87	20·36	20·53	22·03
60	14·56	13·60	13·91	14·41	15·06
70	8·77	8·55	8·70	9·08	9·37
80	4·58	4·97	4·75	5·22	5·37
90	1·64	2·80	2·56	2·78	2·99

Age.	ANNUAL MORTALITY PER CENT.			
	Peerage Families.	English Table. Dr. Farr.	Equitable. Morgan.	Government Annuitants. A. G. Finlaison.
Under 5	2·227	7·072	—	—
5 to 9	·345	·926	—	·718
10—19	·536	·581	—	·742
20—29	1·046	·882	·749	1·315
30—39	·870	1·094	·928	1·216
40—49	1·227	1·487	1·243	1·368
50—59	1·764	2·275	2·111	2·269
60—69	3·757	4·654	4·304	3·971
70—79	8·714	10·012	8·994	8·685
80—89	23·836	21·786	20·786	18·600

TABLE V.—*Females.*

Age.	MEAN DURATION OF LIFE.			
	Peerage Families.	English Table. Dr. Farr.	Government Annuitants A. G. Finlaison.	Healthy Districts. Dr. Farr.
0................	53·71	42·04	—	49·45
10................	50·16	47·86	50·07	50·88
20................	43·48	40·65	43·27	43·50
30	36·82	34·06	36·65	36·85
40................	29·93	27·50	29·91	30·00
50................	23·08	20·84	22·99	22·87
60................	16·42	14·49	16·17	15·69
70................	11·28	9·12	10·14	9·85
80................	6·92	5·34	5·69	5·64
90................	4·10	3·09	2·91	3·11

TABLE V.—*Females—Contd.*

Age.	ANNUAL MORTALITY PER CENT.		
	Peerage Families.	English Table. Dr. Farr.	Government Annuitants. A. G. Finlaison.
Under 5	1·882	6·037	—
5 to 9	·440	·900	·668
10—19	·716	·639	·648
20—29	·830	·917	·850
30—39	·921	1·120	·995
40—49	1·179	1·389	1·149
50—59 ...	1·708	2·107	1·621
60—69	3·508	4·079	3·063
70—79	6·092	9·095	7·119
80—89	11·601	19·461	16·724

TABLE VI.—*Both Sexes.*

Age.	MEAN DURATION OF LIFE.		
	Peerage Families.	Carlisle.	Healthy Districts.
0............	52·62	38·72	49·00
10............	49·39	48·82	51·08
20............	42·21	41·46	43·45
30............	35·96	34·34	36·64
40............	28·86	27·61	29·64
50............	21·95	21·11	22·44
60............	15·16	14·34	15·37
70............	9·61	9·18	9·61
80............	5·45	5·51	5·51
90............	3·54	3·28	3·05

Age.	ANNUAL MORTALITY PER CENT.	
	Peerage Families.	Carlisle.
Under 5	2·069	7·324
5 to 9	·388	1·011
10—19	·617	·588
20—29	·951	·761
30—39	·892	1·053
40—49	1·208	1·423
50—59	1·742	1·863
60—69	3·668	4·082
70—79	7·737	8·801
80—89	17·514	17·262

TABLE VII.—*Peerage Families.*

Age.	MEAN DURATION OF LIFE.	
	Males.	Females.
0	52·00	53·71
10	49·04	50·16
20	41·46	43·48
30	35·51	36·82
40	28·33	29·93
50	21·40	23·08
60	14·56	16·42
70	8·77	11·28
80	4·58	6·92
90	1·64	4·10

Age.	ANNUAL MORTALITY PER CENT.	
	Males.	Females.
Under 5	2·23	1.88
5 to 9	·35	·44
10—14	·41	·66
15—19	·66	·77
20—24	1·10	·79
25—29	·99	·87
30—39	·87	·92
40—49	1·23	1·18
50—59	1·76	1·71
60—69	3·76	3·51
70—79	8·71	6·09
80—89	23·84	11·60